

11. (Thrice Amended) A micromachine manufacturing method for manufacturing a micromachine, in which a first microstructured portion is operative to drive a second microstructured portion of a predetermined shape, the method comprising:

a first microstructured portion providing step of providing a first microstructured portion; and

a molding step of forming at least a part of said second microstructured portion on said first microstructured portion by mold transfer, after said first microstructured portion is provided so that substantially all reflected incident light from a light source travels in a direction almost perpendicular to an area between the first and second microstructured portions.

REMARKS

Claims 1-27 are pending. By this Amendment, claims 1 and 11 are amended. Reconsideration in view of the above amendments and following remarks is respectfully requested.

The attached Appendix includes marked-up copies of each rewritten paragraph and claim (37 C.F.R. §1.121(c)(1)(ii)).

Entry of this Amendment is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance (for the reasons discussed herein); (b) do not raise any new issue requiring further search and/or consideration (since the amendments amplify issues previously discussed throughout prosecution); (c) satisfy a requirement of form asserted in the previous Office Action; (d) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (e) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Entry of the amendments is thus respectfully requested.

The Office Action objects to claims 1-27 because of informalities. Applicants amend claims 1 and 11 to correct the informalities. Accordingly, Applicants respectfully request that the objections to claims 1-27 be withdrawn.

The Office Action rejects claims 1-7, 11-14, 17-21, 24 and 27 under 35 U.S.C. §102(a) as being anticipated by Zhou (U.S. Patent No. 5,953,469); claims 8-10 and 22 are rejected under 35 U.S.C. §103(a) as being unpatentable over Zhou; and claims 25 and 26 are rejected under 35 U.S.C. §103(a) as being unpatentable over Zhou, and further in view of Tamura (U.S. Patent No. 6,017,973). Applicants respectfully traverse the rejections.

In particular, Applicants assert that neither Zhou nor Tamura disclose or suggest a micromachine including at least a first microstructured portion, and a second microstructured portion of a predetermined shape, at least a part of which is formed by mold transfer, the first microstructured portion connected to the second microstructured portion for driving the second microstructured portion to cause substantially all reflective incident light from a light source to travel in a direction almost perpendicular to an area between the first and second microstructured portion, as recited in independent claim 1.

Furthermore, neither Zhou nor Tamura disclose or suggest a micromachine manufacturing method for manufacturing a micromachine, including at least a molding step of forming at least a part of a second microstructured portion on a first microstructured portion by mold transfer, as recited in independent claim 11.

Specifically, the Office Action interprets Zhou to disclose a first microstructured portion (the waveguide core 20) and a second microstructured portion (the light switch 30). See Fig. 3. Zhou discloses in Fig. 3 that electrostatic forces drive or actuate the light switches 30. See column 7, lines 39-49. The electrostatic forces may be produced by applying voltage biases 71, 72 and 73 onto a wave guide surface 20a, a back plate surface 40a

and a mirror reflector 31, as shown in Fig. 3. Conductive films may be deposited on the waveguide surface 20a and the back plate surface 40a so that voltage biases can be applied.

Tamura discloses a photocurable resin composition which is a low-viscosity liquid, has excellent handling properties, can be cured in a short period of time and can provide moldings.

In stark contrast to Applicants' claimed invention, neither Zhou or Tamura, either alone or in combination, disclose or suggest that the first microstructured portion is connected to the second microstructured portion for driving the second microstructured portion to cause substantially all reflected incident light from a light source to travel in a direction almost perpendicular to an area between the first and second microstructured portions.

Moreover, neither Zhou or Tamura disclose or suggest at least a molding step of forming at least a part of a second microstructured portion on a first microstructured portion by mold transfer.

On the contrary, the first microstructured portion (the waveguide core 20) in Zhou and the second microstructured portion (the light switch 30) are configured so that the second microstructured portion is driven by electrostatic forces to actuate the switches. However, because Zhou uses the conductive films to create the electrostatic forces to drive or actuate the light switches, the first microstructured portion (the waveguide core 20) in Zhou is not connected to the second microstructured portion (the light switch 30) for driving the second microstructured portion. Furthermore, nowhere in the applied references is a step of forming at least a part of a second microstructured portion on a first microstructured portion by mold transfer disclosed or suggested.

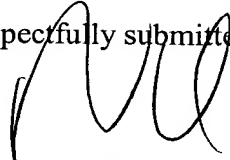
Accordingly, because Zhou fails to disclose each and every feature as the claimed invention, and because Tamura fails to compensate for deficiencies in Zhou, Applicants assert that independent claims 1 and 11 define patentable subject matter. Claims 2-10 and

12-27 dependent claims 1 and 11, respectively, and therefore also define patentable subject matter. Thus, Applicants respectfully request that the rejections under 35 U.S.C. §102(a) and 35 U.S.C. §103(a) be withdrawn.

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1 - 27 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' attorney at the telephone number set forth below.

Respectfully submitted,


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Appendix

Date: December 4, 2002

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APPENDIX

Changes to Claims:

The following is a marked-up version of the amended claims:

1. (~~Twice~~ Thrice Amended) A micromachine comprising:
 - a first microstructured portion; and
 - a second microstructured portion of a predetermined shape, at least a part of which is formed by mold transfer, the first microstructured portion connected to the second microstructured portion being for drivingen by the ~~first~~ second microstructured portion to cause substantially all reflected incident light from a light source to travel in a direction almost perpendicular to an area between the first and second microstructured portions.
11. (~~Twice~~ Thrice Amended) A micromachine manufacturing method for manufacturing a micromachine, in which a first microstructured portion is operative to drive a second microstructured portion of a predetermined shape, the method comprising:
 - a first microstructured portion providing step of providing a first microstructured portion; and
 - a molding step of forming at least a part of said second microstructured portion on said first microstructured portion by mold transfer, after said first microstructured portion is provided so that substantially all reflected incident light from a light source travels in a direction almost perpendicular to an area between the first and second microstructured portions.